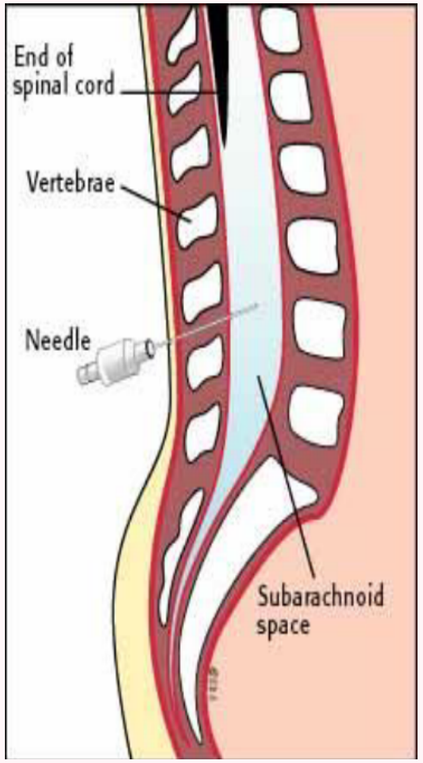
Sem 4 Microbiology Practical Revision

Diagnosis of Meningitis

Diagnosis of Meningitis

Q1: Explain collection procedure for obtaining this sample.

- ✔ Lumbar puncture.
- ✔ Aseptic conditions.
- ✔ Between 4th and 5th lumbar vertebrae.
- ✔ Screw-capped bottles.
- ✔ Sent to the laboratory at once.



Diagnosis of Meningitis

Q2: List characters of obtained CSF in case of meningococcal meningitis (bacterial or septic meningitis).

- ✔ Turbid, under tension, low glucose value, high protein level, and contains polymorphonuclear cells

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Q3: List characters of obtained CSF in case of aseptic meningitis or tuberculous meningitis.

Type of meningitis	Cells	Glucose	Protein
Bacterial (Septic)	Neutrophils	Low	High
Tuberculous	Lymphocytes	Low	High
Aseptic	Lymphocytes	Normal	Moderately high

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Q4: Describe tests done on this sample.

- CSF is examined for:

- Physical (pressure , turbidity)
- Chemical (protein, and glucose)

Haematological (cells)

- Bacteriological characters (microscopy and culture)

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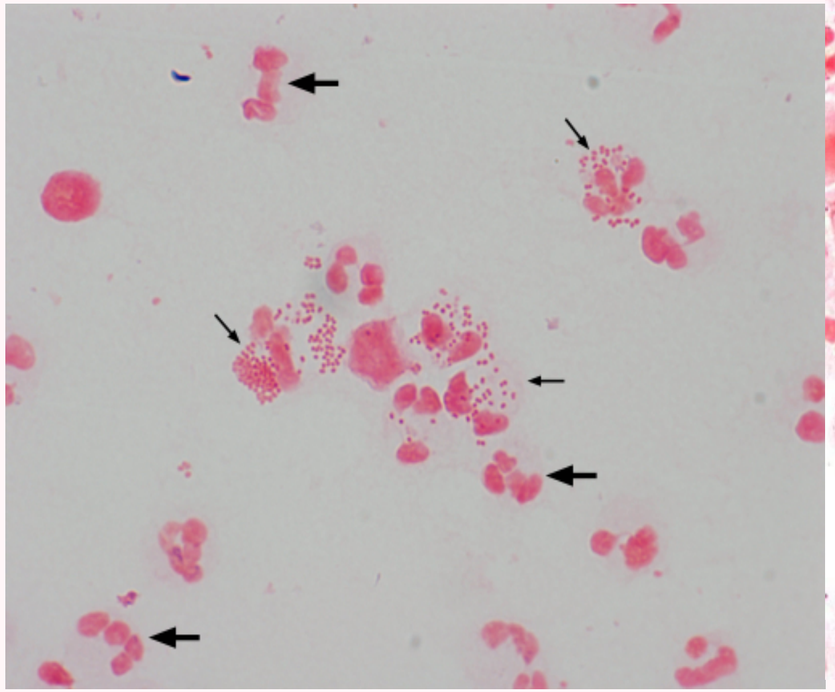
Q5: Identify this stained film.

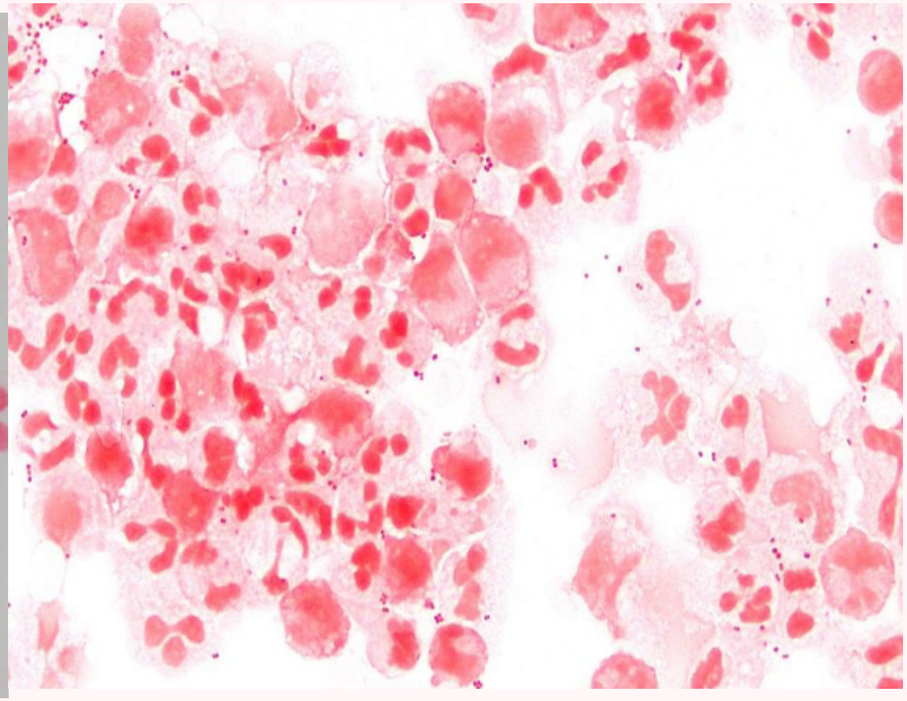
- Gram-negative,

kidney shape, diplococci,

piliated & capsulated.

- Intracellular.
- (*Neisseria Meningitidis*).





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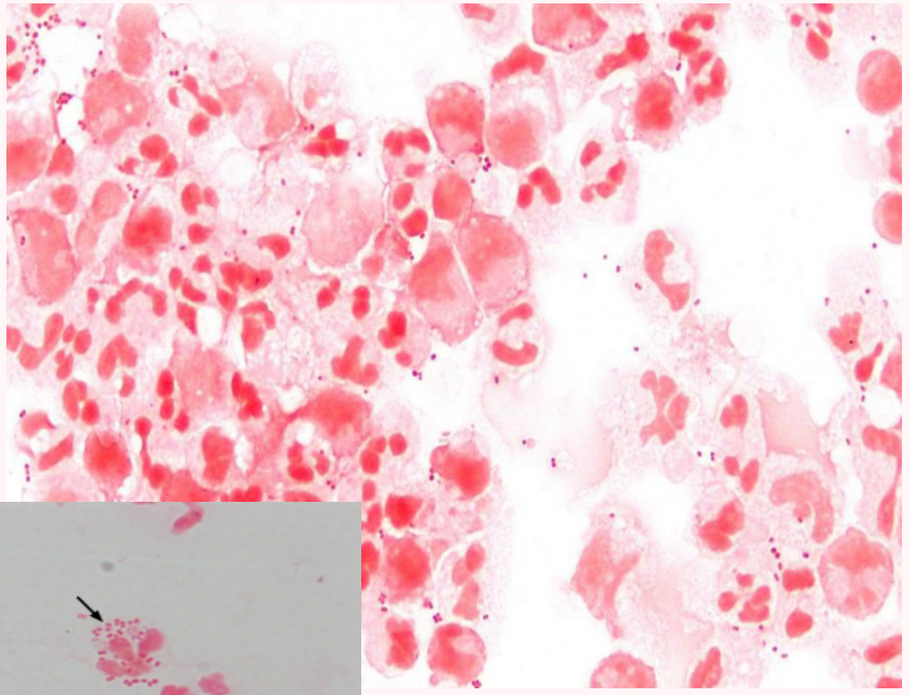
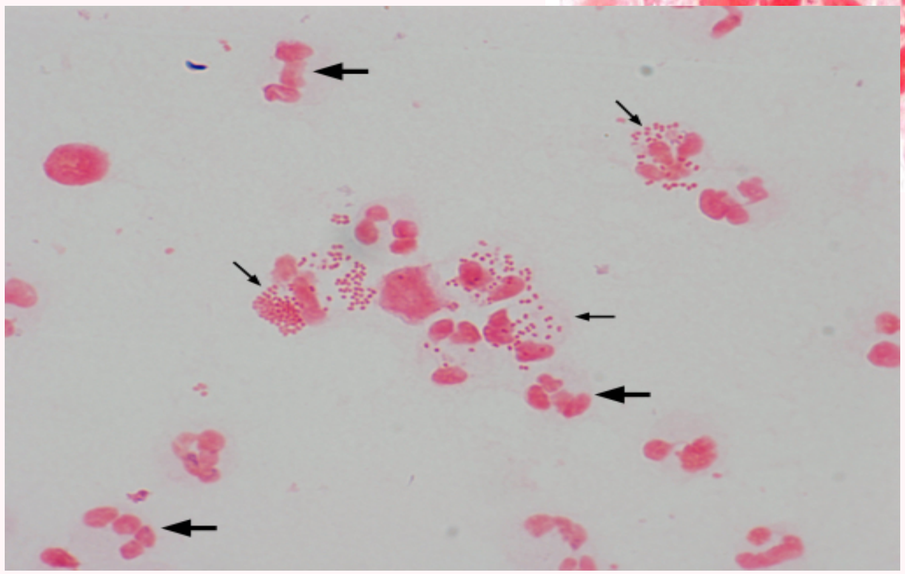
Q6: State cultural characters of the organism isolated in this stained film.

- Aerobic.
- Optimum temperature: 37 °C, with narrow temperature range (30-38°C), no growth at 22°C.
- 10% Co2 and moist atmosphere are required for growth.





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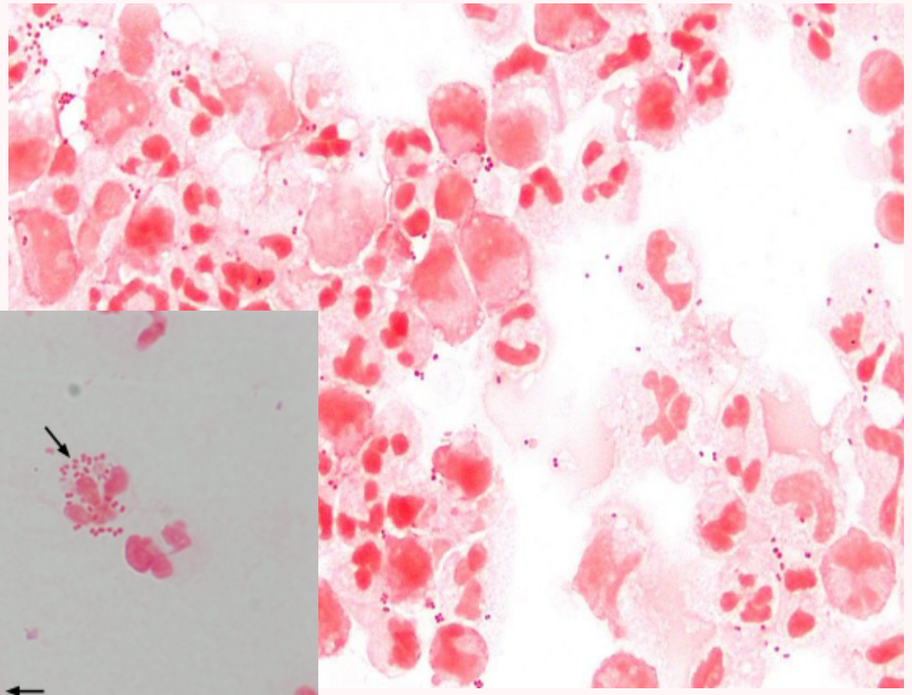
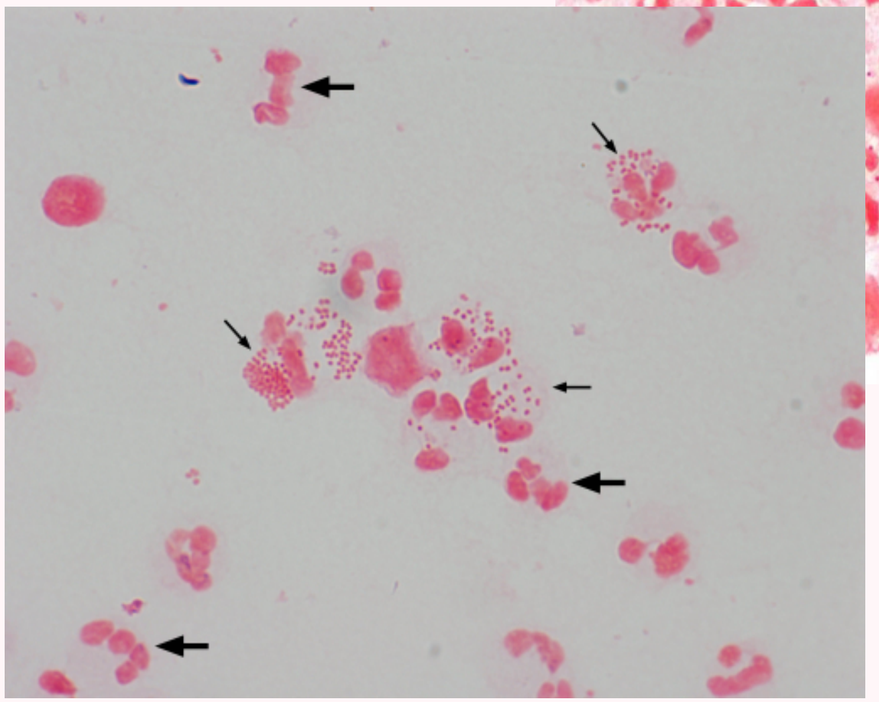
Q7: Report culture media of the organism isolated in this stained film.

- Ordinary media: no growth.
- Enriched media: chocolate agar plate.
- Selective media: Thayer-Martin agar.





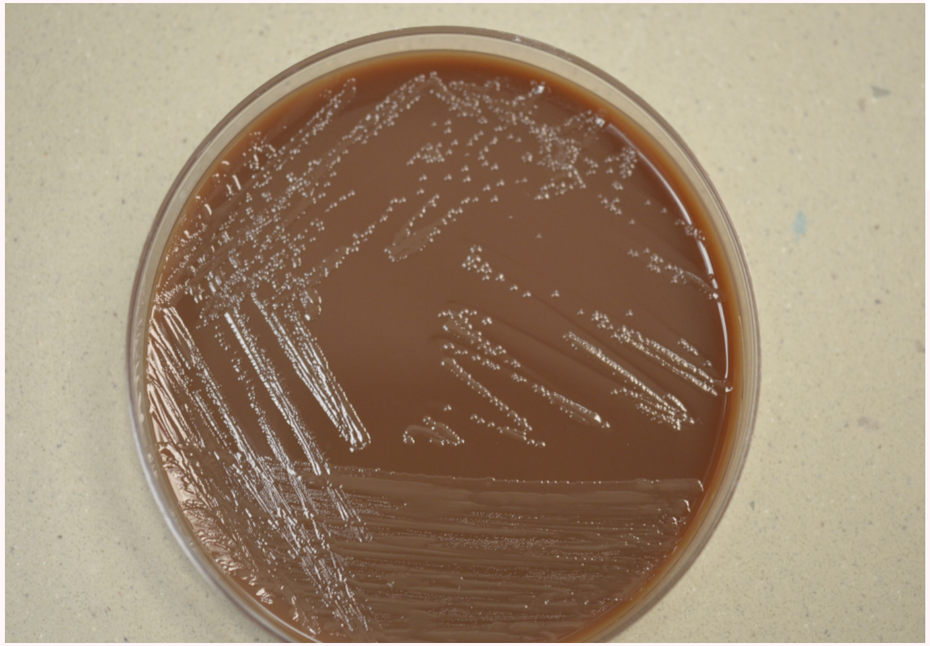
Diagnosis of Meningitis

Q9: State type of this media.

- enriched media.

Q10: Identify this media.

- Chocolate agar plate



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Q11: Report selective components of this media.

- Vancomycin kill most gram-positive bacteria
- Colistin kill most gram-negative bacteria

including the commensal Neisseria spp., except Pathogenic Neisseria

- Nystatin kill most fungi.

Q12: State type of this media.

- Selective media.

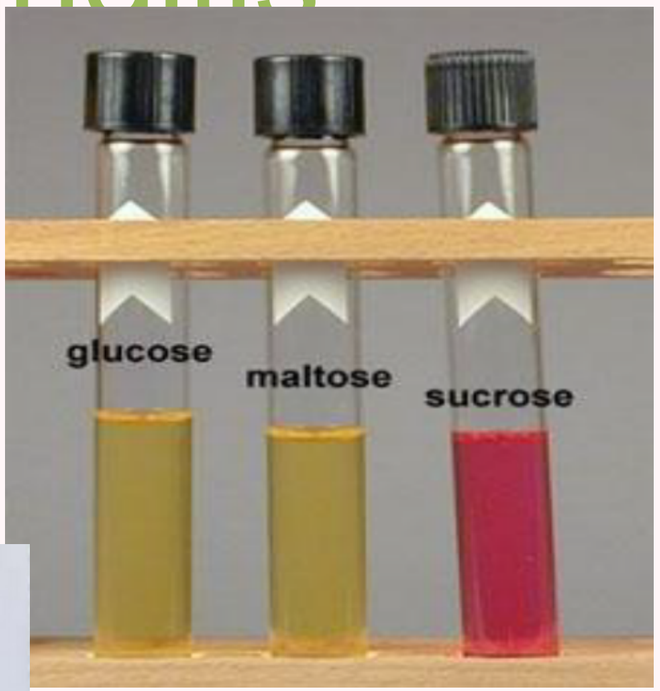
Q13: Identify this media.

- Thayer-Martin media

Diagnosis of Meningitis

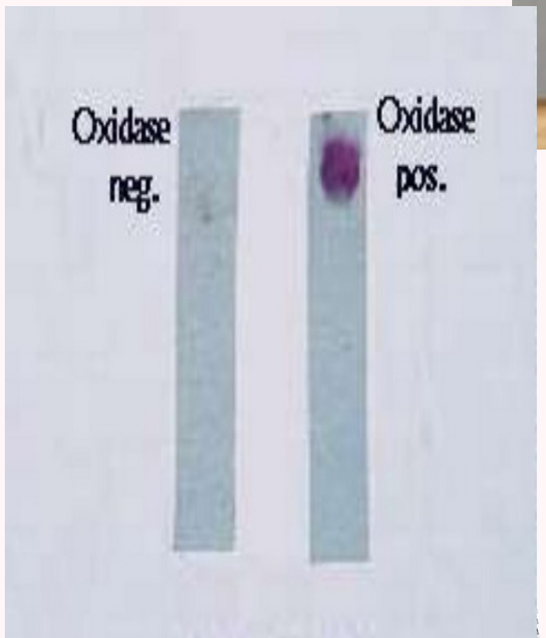
Q14: Report the fermentive action of *neisseria meningitidis* on these sugars.

- Sugar fermentation: glucose and maltose (acid production only).
- No fermentation of sucrose.



Q15: Identify this test and its value in Diagnosis of *neisseria meningitidis*.

- Oxidase test, it is oxidase positive.



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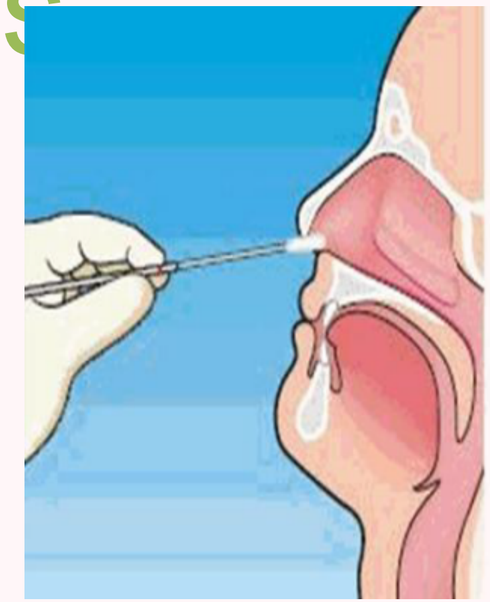

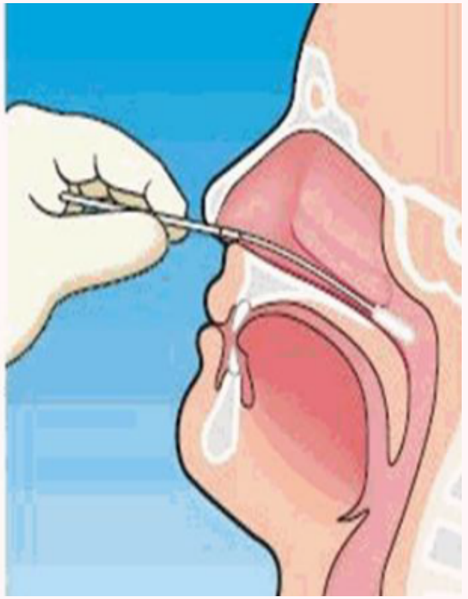

Q17: State value of taking this sample in Diagnosis of *neisseria meningitidis*.

- Nasopharyngeal swab is examined for diagnosis of meningococcal carrier.

Q18: Compare pathogenic and commensal neisseria.

Neisseria	Pathogenic	Commensal
Temperature	37	Room temp.
Ordinary media	No	Grow
Thayer Martin medium	Grow	No
Colony pigment	No	May produce
Reaction with antimeningococcal sera	Yes	No

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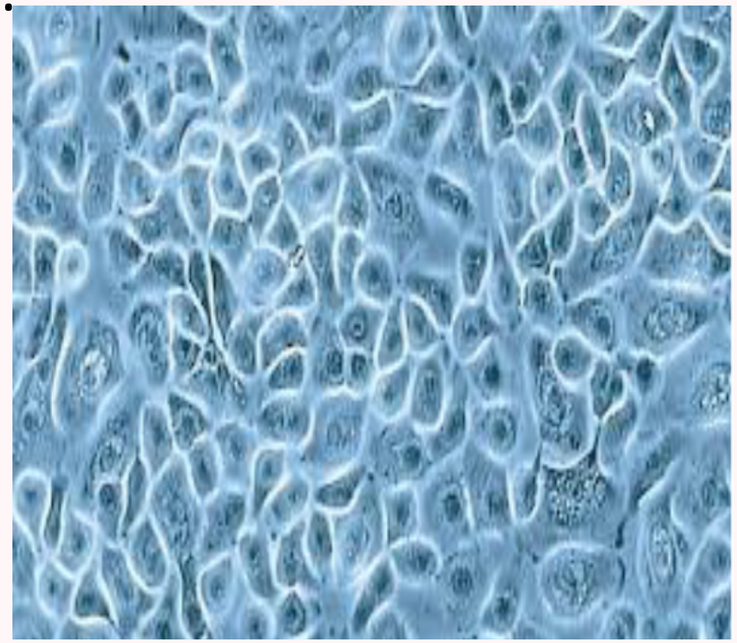
Q19: State 4 causative organisms causing viral meningitis.

- Enteroviruses: Echovirus, Poliovirus, Coxsackie A virus.
- Measles, Mumps, influenza.



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Q20: Clarify steps of diagnosis of viral meningitis.

1- Direct detection:

- Detection of Virus particles by (electron microscope).
- Detection of viral antigens by (EIA, RIA…) and nucleic acid by (PCR).

2- Virus isolation: Viruses are obligate intracellular parasites and can be cultivated on:

- Tissue cultures: cytopathic effect (CPE).

3- Serologic detection of antiviral antibodies: By serological methods (EIA, RIA…).